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EDUCATION, WORK and EMPLOYMENT A Summary Review

A report for the Research Review and Advisory Group

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CANADA

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EDUCATION, WORK AND EMPLOYMENT:
A Summary Review

Prepared by Maureen Woodhall

for the Research Review & Advisory Group
International Development Research Centre (IDRC)
Ottawa, March, 1979.

EDUCATION, WORK AND EMPLOYMENT:

A Summary Review

This is one of a projected series of reports that will present summaries of existing state-of-the-art reviews in selected topics related to educational research. Summaries of conference proceedings that address the totality of a subject, or of assessments of a number of field experiments in a given area, are also included in each report as appropriate.

The report has been prepared under the sponsorship of the educational Research Review and Advisory Group, a project of the International Development Research Centre (IDRC) in Ottawa, Canada. Further copies of the present report or information about the project can be obtained by writing IDRC (RRAG), P.O. Box 8500, Ottawa, Canada, K1G 3H9.

It is intended that the series have a number of uses particularly to readers who, although familiar with research in general, nevertheless seek familiarity with a particular subject. Persons in national or international organisations, funding agencies, Ministries or Departments whose areas of discretion include the determination of research priorities, allocation of funds to pursue these, or advising others in the related tasks, areamong the intended audience. Any information about uses to which the present report has been put, or comments that would assist in increasing the utility of the series, will be gratefully received by the project's co-ordinator at the above address.

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"Education and the Employment Problem
in Developing Countries "

International Labour Office, Geneva 1973, 89 pp.

Author: Mark Blaug, Professor of the Economics of Education, University of London, Institute of Education, 56 Gordon Square, London WC1H ONT.

Content

This study is a contribution to the World Employment Programme of ILO and attempts to assess the responsibility of the educational authorities in the problem of unemployment and underemployment in less developed countries. The study begins by defining the "employment problem", and shows that it is more complex than is often supposed.

The economics of education is examined to see what practical guidelines have emerged from recent research, particularly on the question of the economic value of education, and whether the fact that more highly educated workers have higher earnings is the result of knowledge and skills they have learned, or is due to social or other forms of selection.

The author then turns to the various solutions that have been suggested for solving the problems of educated unemployment, mass unemployment, underemployment and poverty. The solutions he examines include both "traditional" solutions, such as quantitative controls or increased vocational schooling and more radical solutions, such as abolishing examinations or transforming formal education to make it a genuinely life-long process. He concludes by asking what policies of educational or labour market reform are feasible and what they could contribute to solving the 'employment problem'.

Assumptions

The study examines a number of assumptions about education and employment, that have formed the basis of research or projects, including the ILO employment missions in Colombia, Iran, Kenya and Sri Lanka. In particular, it starts by examining the conclusions of two ILO reports:

> "The root of the problem lies in the interaction of the conventional educational system and the wage and salary structure through the allocation of jobs and wages by reference primarily to educational qualifications" (from the report of the Kenya employment mission) and

> "It is obvious that education is in no way responsible for the problem of over-all imbalance (i.e. between labour supply and demand). Changes in the educational system will not change the number of job opportunities... However, education is definitely responsible for one of the problems of structural imbalance: that of matching employment opportunities and expectations."

The purpose of the report is to examine these, and other conclusions which many writers have regarded as axiomatic, to see whether they are supported by evidence. Other assumptions are also examined, for example that education contributes to economic growth, and that the earnings of educated manpower reflect their productivity. But the purpose is always to test the validity of these assumptions, rather than to adopt them at the outset.

The only explicit assumption is that "There is scope for educational policy, but only if the policy is an integral feature of a general employment strategy.... Everything depends on everything else. Hence the need for a general development strategy". However, even this is qualified, because the author recognises that this "can become a perfect excuse for doing nothing", and the whole purpose of the study is to ask what can be done. Blaug compares alternative policies, in terms of the degree of impact which they are likely to have on various aspects of the employment problem, and at the same time argues that "there may be a trade-off between employment and output objectives, but on the other hand the dilemma is avoidable and clearly has been effectively avoided" by some countries.

Sources and Methods

A wide range of theoretical and practical studies are quoted, mostly from the literature on the economics of education, but no special methods of enquiry, or sources, have been used.

Summary

(a) The employment problem

A review of various definitions,and evidence of unemployment, or underemployment, shows that the "employment problem" in developing countries is really a series of overlapping problems, including visible unemployed young people, including school leavers and graduates, and the

low incomes, and hence poverty, of certain groups of employed workers.

(b) The allocation of educational resources

Almost all LDC's suffer from persistent underinvestment in primary education and persistent over-investment in higher education. Cost-benefit analysis of education cannot, by itself, prove that resources are misallocated, but it does "create a presumption of how resources ought to be reallocated", in particular, that resources should be shifted towards the bottom end of the educational pyramid, that there should be more investment in primary education, but attempts to increase the vocational content of formal schooling are misguided.

(c) The economic value of education

Education does make workers more productive, which is why employers pay educated workers more than illiterate or less educated workers, but the economic value of education lies in its influence on attitudes, motivation, social and communication skills, and not solely on its ability to impart productive skills or technical knowledge. It is true that education acts partly as a "screening device" which enables employers to identify workers with the attributes they require, but this is not its only economic contribution; education helps in the formation of initiative, self-reliance and other personal attributes which employers value, as well as enabling them to identify such attributes.

(d) Educational reforms which may alleviate educated unemployment

Quantitative controls may be useful in limiting the expansion of higher education in some countries, but in many cases this is not a feasible option. Tuition fees could be increased in many countries, which would reduce demand for higher education, and would also be more equitable than present patterns of subsidy, provided student loan schemes were introduced.

Other solutions, such as increased emphasis on vocational subjects, adult literacy campaigns, attempts to devise special curricula for rural areas, or "training for self-employment" have not been successful because too little is known about the effects of education on values, and the values which are necessary to promote economic growth and the expansion of employment.

More radical solutions, such as the abolition of examinations or even of formal schooling are no answer either, since satisfactory aptitude tests have not yet been developed, as an alternative to examinations, and advocates of "deschooling" do not propose viable alternatives, particularly for developing countries. Nevertheless, certain kinds of curriculum reform, and ideas of postponing the entry to higher education for a few years, may be valuable in focussing attention on traditional assumptions about education.

(e) Labour market reforms

Changes in the pattern of pay differentials and hiring practices are needed to reduce the private rate of return and therefore the private demand for higher education, and to reduce the scramble for paper qualifications

The study finally examines a number of "widely held shibboleths" about education and employment, for instance that education makes the unemployment problem worse, by coverting rural underemployment to open unemployment in towns. All these are shown to be oversimplified, as are the claims that the problem of unemployment can be quickly solved by educational reforms. The author concludes with a plea for "piecemeal social engineering", rather than the search for "clever ideas which will solve all our difficulties overnight".

Future Research

There are many suggestions for experiments and future research, particularly on the way the labour market actually operates in LDC's, the way in which education influences values and motivation, and the effects of alternative methods of financing education, or alternative salary structures. "The educational authorities of the less developed countries must be persuaded that we still do not know how to make education "relevant" to employment opportunities and that in fact we shall never know until someone conducts controlled field experiments."
Specific questions to be studied include:

(1) the quality of teachers, the kind of people attracted to teaching, and the way they are taught to teach;
(2) how to reform the curriculum to maximise problem solving, rather than fact-learning;
(3) how to develop out-of-school education that is flexible and responsive to local needs.

WEP Research: A Critical Review

SAREC Report No. R: 1976
Stockholm: Swedish Agency for Research
Co-operation with Developing Countries, 44 pp.

Author: P. Thandika Mkandawire

Content

This report attempts an evaluation of some of the research carried out under the International Labour Office's World Employment Programme (WEP). It does not attempt to cover all the WEP research activities, but is confined to the research funded by Sweden, which is concentrated on three main topics:

(i) Income Distribution and Employment;
(ii) Technology and Employment;
(iii) Rural Employment.

In addition to a critical review of the research studies financed by the Swedish government, the report provides a short summary of the methods and objectives of the WEP and its research programme and a list of the various governmental and international agencies which are financing the research, together with a bibliography (of 4 pages) which lists all the WEP publications which are consulted by the author, in the course of writing the review.

Sources

At the time this report was prepared (September 1976) the WEP had published over 400 books, articles and working papers relating to the problems of employment in developing countries. The review concentrates on four books, about ten articles in the International Labour Review, and about 50 ILO working papers which present the results of research in the two areas:

(i) Income, Distribution and Employment;
(ii) Technology and Employment.

These publications, which mostly appeared between 1970 and 1975, are not all mentioned explicitly in the review, although the author summarises the main conclusions of these publications, and refers to general ILO report

on the World Employment Programme: (Employment Growth and Basic Needs (ILO, 1976). In addition, a few other relevant publications are mentioned in the report, which therefore provides a useful summary of the main published research findings in these two areas.

The third topic which is discussed in the report, that is the problem of rural poverty and employment is the most recent of the three research projects discussed in this review, and no results had been published by the WEP at the time this report was written (September 1976), so that the final section of the review simply summarises the purpose of the various WEP research activities which will examine rural employment.

The Objectives of WEP

The overall objective of WEP is:

"to assist member states (of ILO) in the elaboration of specific guidelines that will enable national political decision-makers and planners to reduce unemployment and underemployment by accelerating the creation of productive income earning opportunities and to help them in devising and implementing the appropriate policies and measures for giving effect to such guidelines".

The activities of the WEP include employment missions to Colombia, Kenya, Philippines and Sri Lanka, the establishment of regional employment teams for Africa, Asia and Latin America and country employment teams for countries which specifically request ILO assistance, as well as the research which is the subject of this report. The specific objectives of the research are:

(i) to identify and clarify the main policy issues arising in the employment area;

(ii) to advance knowledge of the nature, magnitude and types of employment problems and of appropriate policy measures and programmes to deal with them;

(iii) a re-assessment of economic and social development planning and policies, in order to achieve a "comprehensive employment-oriented strategy";

(iv) to stimulate world-wide research on employment problems especially by individuals in the developing countries.

Assumptions

The initial assumption of the WEP research was that unemployment was the basic problem to be tackled, but this has given way to the realisation that poverty rather than unemployment is the basic problem, and that "eradication of poverty could not be expected to be an automatic by-product of policies solely aimed at increasing employment". The author believes that the WEP research programme has contributed significantly to the fund of knowledge on the problems of economic development by demonstrating the limitations of focussing attention on one aspect of underdevelopment - the underutilisation of labour - and by shifting its focus from unemployment to the more general problem of poverty.

The author critically examines the assumptions of the WEP research, particularly on income distribution and employment. The basic assumption of most of the research on income distribution is that an increase in the equality of income distribution in developing countries will lead to greater employment, and that income distributions affects employment through:

a) the volume of savings, which in turn determines the rate of investment;
b) the pattern of consumption, which in turn determines the techniques of production employed in an economy, and therefore, the amount of employment.

The emphasis of the WEP has been on the second of these two relationships, and the underlying assumption - which the author says is often stated as a fact, although without supporting evidence, is that if income is distributed more evenly between rich and poor, this will lead to an increase in demand for labour-intensive products (such as food and clothing) and therefore will stimulate employment. The author looks at the publications of the WEP, and "is struck by the fact that although much stress is laid on the effect of income distribution and employment very little research work has been done" to test the basic assumption. The conclusion of his review is that much of the research casts doubt on "simplistic views of the effect of income distribution on employment and vice versa".

The research on technology and employment has examined some basic assumptions that have dominated previous work in this area:

a) the assumption of "fixed input-output coefficients", i.e. there is limited scope for choice between alternative techniques of production;

b) the assumption of infinitely variable techniques, which means that choice must be made, for example, between labour-intensive and capital-intensive techniques, in order to find the most "appropriate technology".

The assumption that production techniques are fixed by the state of technology and that the same technique will be used to produce a particular good, regardless of the scale of demand, or the relative prices of labour and capital, is not supported by the results of WEP studies, which show that it is possible to produce the same product by a variety of different methods, all of which may be technologically efficient. But much of the research has demonstrated the complexity of questions about choice of techniques, and the effects of employment, and has shown, once again, that the assumptions of some previous work need to be re-examined.

The author concludes that "in many instances WEP has shown on what loose grounds most of the theories, policies or conceptualization of unemployment are founded".

Summary of Research Findings

This summary of the main research findings presents a brief outline of the author's evaluation of the WEP studies, as well as a summary of their conclusions.

(i) Income Distribution and Employment

The first concern of the WEP research on this topic was to examine the extent of income inequality in different countries and trends in income distribution over time. The evidence suggests that the relationship between the equality of income distribution and economic development is U-shaped; countries which are at the extremes of either economic underdevelopment or very high levels of industrialisation and development have more equal income distributions than countries in the middle of the range. Between these extremes, the greater the degree of industrialisation and the rate of economic growth, the greater degree of income inequality, up to a peak represented by countries with a 1965 GDP per head of US $200-500; countries with higher levels of GDP than this tend to have more equal income distributions.

This suggests that countries which aim to achieve faster rates of economic growth will have to go through a stage of greater income inequality,

unless governments succeed in introducing measures which enable the economy to skip this intermediate stage. Although the WEP assumes that such measures are feasible, the author finds no evidence that it is possible, within existing institutional arrangements in most developing countries and concludes that "we have no reason to believe that underdeveloped countries can avoid the stage of growing inequality without some radical reshaping of their institutions".

One way in which governments affect income distribution directly is through taxation, but studies in the Philippines, Hong Kong and India show that taxation is a very weak instrument for changing income distribution in developing countries. Neither direct nor indirect taxation has much effect on consumption patterns, and in many countries the before-tax and after-tax distribution of income is virtually identical.

Much attention has been paid to the role of education in redistributing income, but most of the WEP research has shown that the relationship between education and income distribution is complex, and that "education alone will be of little use as a distributive measure".

Similarly, there is evidence that changing the income distribution in a country will not, by itself, have a significant impact on employment. Although, as we have already shown in the section on assumptions, many of the WEP studies assume that greater equality of incomes will lead to an increase in employment, the research findings suggest that this is not necessarily so. Even if there is a clear causal link between increasing the incomes of the poor and an increase in employment, the size of the increase in employment is small. One reason for this is that an increase in the incomes of the poor does not necessarily increase the demand for labour-intensive goods. If there is a marked increase in the demand for a product that was previously produced by labour-intensive means, the existence of economies of scale often means that more capital-intensive techniques will be adopted, once demand for the product has increased. Thus, a study of the impact of income distribution on employment in the Philippines was nullified, according to the author, by the fact that it ignored the possibility of economies of scale.

Because of the complexity of the relationships between income distribution and employment, any strategy which tries to manipulate one of these variables, in the hope that this will automatically change the

other, "stands on extremely loose ground". What is needed is a two-sided approach that would deliberately change both employment and income distribution.

(ii) Technology and Employment

WEP research in this area has concentrated on the question of what determines the choice of techniques of production, and what can be done in developing countries to stimulate the use of "labour-intensive" rather than "capital intensive" techniques, in order to increase employment. A number of studies have shown that a wide range of alternative methods of production do exist, so that there is often scope for substituting one type of input (e.g. labour) for another (e.g. capital). However, there is no clear evidence about which industries are most able to make such substitutions, and the concepts of "labour-intensive" and "capital-intensive" techniques can be quite misleading if applied in the wrong way, for example, the degree of mechanisation of a process is not the same as the degree of capital intensity.

The employment implications of the choice between different production techniques are often highly complex, and a technique which leads to high levels of output may not lead to high levels of employment.

In the past, it has often been argued that the relative prices of labour and capital have become distorted in many countries which has resulted in a choice of capital-intensive technologies, which are better suited to highly developed economies than under-developed countries. Studies of the effect of relative prices on the choice of production techniques in different industries have shown that price distortions do not explain the use of capital intensive techniques, and furthermore, political and social constraints often make it impossible for governments to lower the price of labour (i.e. wage rates) sufficiently to encourage the adoption of more labour intensive technology.

Nor does it appear that it is very fruitful to search for "intermediate technologies" which are better suited to developing countries than the techniques used in more highly developed economies. Even though the factor endowments of advanced and developing countries are very different, this does not mean that it is desirable for poor countries to ignore the state of technical knowledge, and try to develop or adopt labour intensive techniques.

For the necessary equipment and machinery often does not exist, and could only be produced either so slowly, or at such a high cost, that it would drastically reduce the employment gains of adopting labour-intensive techniques.

One solution that is sometimes suggested is the use of second-hand machinery, from more advanced countries, in the industries of less developed countries. Unfortunately, WEP studies show that this is rarely feasible because of the difficulties of repairing obsolete machinery, particularly when spare parts are no longer manufactured cheaply in the developed countries. This means that the costs of maintaining second-hand machinery may out-weigh the apparent employment benefits.

The search for labour-intensive methods of carrying out public projects, such as road or house building is also criticised as a means of providing additional employment in developing countries. While it may produce short-run benefits, it can lead to even greater problems of unemployment in the long run.

Future Research

The most recent research of the WEP reviewed in this paper is a collection of projects dealing with rural poverty and employment. The questions that these will try to answer include:

a) What determines rural poverty? The main hypothesis to be examined is that it is the distribution of physical assests, chiefly land, which causes rural poverty.
b) What is the relative effectiveness of different methods of reducing the concentration of land ownership, i.e. small-scale owner-operated farming and communal land ownership (e.g. in China)? Studies will be conducted in Egypt, China, Algeria, Mexico and Bangladesh.
c) What are the effects of different institutional arrangements, systems of land tenure on the rate of savings and agricultural accumulation in different countries? Is a high degree of inequality in the rural economy necessary to achieve high rates of saving?
d) What are the effects of rural-urban migration on the rural economy?
e) What is the contribution of women to the rural labour force, particularly by means of unpaid work?

The author emphasises the need for systematic study of previously published research, for instance by FAO, in order to avoid duplication.

Apart from this discussion of on-going research, the author identifies various needs for research in the future. The most important is the need for more research into the effects of institutional constraints.

> "Although the WEP research implicitly and often explicitly clearly indicates the importance of political factors in the employment problem, this part of the problem has received very little attention. It would seem necessary that something specific should be said about political constraints on employment strategies and what institutional arrangements are necessary for introducing the reforms suggested by the research".

Discussion

It is not surprising that a review of such a wide-ranging research programme, covering such a variety of countries, should produce relatively few clear-cut answers to questions about employment. Most of the research indicates that relationships, for example, between income distribution and employment, or between choice of production techniques and employment, are far more complex than has been supposed.

The author comments:

> "In looking at the Swedish-funded programme one is struck by the absence of any new, definite results. But...this in itself is no criticism of the programme since in many instances WEP has shown on what loose grounds most of the theories, policies or conceptualization of unemployment are founded. The explosion of myths is always an important step towards finding solutions."

The myths which are most frequently explored in this review of research are the assertions that government action in one area alone, whether it is income distribution, taxation, the provision of education, or the determination of relative factor prices, is sufficient to produce wide-ranging effects on employment and unemployment. What this research demonstrates very clearly is that the formulation of future policies needs to pay more attention to the inter-relationships between variables, and less to the search for simple solutions.

EDUCATION AND EMPLOYMENT IN LATIN AMERICA

Santiago, Chile: ILO, PREALC
(Programa Regional del Empteo Para America Latina y el Caribe) May, 1976.

Author: Ernesto Schiefelbein

CONTENT

This is a review of research in Latin American countries, on education and labour market trends, designed to throw light on the relationship between employment and the education system - defined in the widest sense, to include non-formal training as well as formal schooling. The report is chiefly concerned with attempts to analyse, or to reduce, the "structural imbalances" that have become increasingly obvious in most Latin American countries in recent years. It includes descriptions of a number of educational or labour market trends of experiments, as well as discussions of systematic research studies, so that it might be more accurate to describe it as a review of educational innovations, rather than simply a review of research.

The report deals first with a variety of educational trends, reforms and innovations which have been designed to improve the co-ordination between the education system and the labour market, and adapt the output of education systems to the changing characteristics of employment. These include:

(i) the preparation of quantitative manpower plans as a guide for educational planning;
(ii) the development of vocational education;
(iii) adult education and accelerated training schemes for adult workers;
(iv) non-formal education;
(v) some attempts at curriculum reform and counselling.

The second part of the report deals with trends in the labour market in Latin American countries, and the implication of changing employment patterns on education. After a description of quantitative trends in education and employment, the report considers the implications of:

(i) inequalities of employment and educational opportunities, and the growing problem of unemployment;
(ii) the relationship between education and productivity;
(iii) technological change;
(iv) migration and mobility of resources;

(v) community development and the needs of minority social groups.

The report ends with a brief summary of the main trends and features of education and labour market studies in Latin America, and there are a number of suggestions for future research. Most Latin American countries are included, but the report does emphasise the wide differences that exist between different Latin American countries, with respect to both educational and economic conditions.

Sources

A wide variety of published materials has been scrutinised, mostly dating from 1970, but including a few studies in the late 1960's. Bibliographical references are provided for all the research or innovations which are described, and cross-references enable the reader to obtain more detailed information on many of the projects from a journal of educational research abstracts published by CIDE in Santiago, Chile:

Resumenes Analiticos en Educacion.

Assumptions

The author begins by stating that "it will be implicitly assumed that education is a positive input in increasing labour productivity", although a later section of the review examines the evidence for this assumption in Latin America, and concludes, "productivity and education are associated" although "there is no clear evidence whether education provides specific knowledge that makes people more productive or simply "screens" those that are able to obtain higher scores in the successive batteries of tests that are administered during the school years". In other words, the author emphasises the need for better understanding of the causal relationship between education and productivity, but he is not pessimistic about the positive contribution of education and training to economic development.

Summary

There have been several attempts to plan manpower and education in Latin American countries, since the pioneering work in the 1960's by O.E.C.D. and the Organisation of American States, but it is not possible to assess the influence of such plans on educational policies, nor to demonstrate, from the review of research, that the criteria actually used for the allocation of educational resources are closely related to

employment needs.

There is a clear association, throughout Latin America, between the amount of formal schooling of individuals and their subsequent employment and earnings, and this has lead to a variety of cost-benefit studies, which show, for example, high rates of return to primary schooling, but there is no evidence that this has influenced resource allocation, and in fact both secondary and post-secondary education have expanded faster than primary education. Similarly, comparisons of the profitability of formal education and on-the-job training or short vocational programmes have not yielded conclusive results.

A number of innovations in technical education have attempted to make vocational education more relevant to the needs of the economy. These include curriculum and institutional reforms, but although vocational school enrolments have risen rapidly throughout Latin America, students often use vocational schools as an alternative way of entering the more prestigious university sector, and graduates of vocational schools still experience difficulties in finding employment, because employers appear to prefer older, more experienced, workers.

There has also been a rapid growth in the numbers of adults taking part in accelerated training courses, but the geographical distribution of adult education is very uneven and concentrated in the modern, urban sector of the economy. Neither rural areas nor workers in the "informal sector" which includes small firms and service industries appear to gain much benefit from the discussions about "permanent education" in Latin America, and there is a need for more evaluation of adult education. One result of the expansion of adult education is that far more attention is now being paid to the question of the 'equivalences' between different types of education or qualifications.

A number of surveys of informal education in Latin America have shown that agricultural reform projects, broadcasting and the media all contribute significantly to educational output, but do not necessarily reduce inequalities of access to education, since the greatest benefits may be enjoyed by higher socio-economic groups. The expansion of non-formal education often depends critically on the personality of the individuals organising it, and there has been no attempts at systematic control of non-formal education in Latin America.

After reviewing these trends in the education system, the report turns to labour market trends, particularly noting the high incidence of unemployment in most Latin American countries, and the relatively small number of skilled workers employed in the modern sector of the economy. One result of high rates of unemployment has been an increase in the demand for education, which improves young people's chances in the competition for jobs, and has lead to a steady increase in the rate of emigration of qualified professionals. However, the fact that there appears to be an over-supply of university graduates has not resulted in a dramatic reduction in graduate salaries. The salary structure seems to be distorted in many countries by the political power of an educated elite. This, and the fact that fees are low or non-existent, combined with the fact that income differentials in Latin America are relatively greater than in developed countries, means that the private returns to university education are still very high.

Not enough is known about the relationship between education and productivity. In most Latin American countries workers with higher education have higher incomes but attempts to identify how much, and in what ways education contributes to increased productivity have not produced conclusive results. There is evidence that education is more significant in modern sectors, where rapid change is important, and education may be important in changing traditional attitudes, and encouraging mobility. However, elementary education, by itself, seems to have little effect on attitudes in Latin America, and attempts to use elementary schools to encourage innovation, for example in agriculture, have not been successful. Nor does the formal education respond quickly to technological changes which create a demand for new skills.

One positive way in which education has contributed to economic development in Latin America is by its impact on population growth. Although it is still not understood by what mechanisms education succeeds in reducing the rate of population growth, nevertheless the influence of education on population can be observed throughout Latin America.

Future Research

This review identifies a number of areas that require more research in Latin America, such as the longer term effectiveness of adult education

and use of the media for instruction, and the report emphasises the need for thorough evaluation of the innovations in adult and informal education that are being implemented in many countries.

The report also emphasises the need for more accurate information on labour market conditions, notably job opportunities, salaries and career patterns, which can be used as a basis for occupational choice and counselling, and to help students overcome unreal career expectations.

THE ROLE OF EDUCATIONAL PLANNING IN SITUATIONS OF UNEMPLOYMENT (RAISING SOME MAJOR ISSUES)

UNESCO: Paper prepared by Division of Educational Policy and Planning, for Symposium on Educational Planning, Human Resources and Employment, held at UNESCO, Paris 20-24 September 1976, Mimeo 23 pp. plus 2 Annexes.

Content

The paper was prepared, by the UNESCO Secretariat, in order to raise a number of basic questions about education, employment and development, with a view to stimulating discussion at the symposium. The paper does not attempt to summarise research or other activities of the major international organisation, but it does begin with a "small stocktaking" which while not pretending to be exhaustive, nevertheless provides a useful brief summary of the main meetings, research programmes and international activities concerning education and employment between 1972 and 1976.

After this brief account of the major work carried out in the early 1970's, the paper attempts to formulate and clarify the major problems of educational and economic development. This is followed by sections which try to identify and analyse the causes of these problems and suggest some solutions, including:

(i) traditional "educational" solutions, including reforms of the formal education system;

(ii) non-traditional solutions, including the abolition of examinations, a separation of the certification role of education systems and the selection of workers for jobs, or radical changes in education.

Finally, the role of international co-operation is examined, and there are some suggestions for future work.

Assumptions

The paper does not state any specific assumptions, but it does present, as a major focus for its own discussions, and as a summary of the "one dimension which comes out clearly in almost all of the work cited", the need to emphasise the objective of providing relevant education for improving the working life of underpriviledged rural and urban population groups.

Summary

The days when the major problem of educational planning was to ensure sufficient qualified manpower for the modern sector seem to have "gone forever" in most developing countries. Instead, the major problems are now:

1) illiteracy - 800 million illiterates in the world in 1976;
2) poverty - 1,200 million are estimated to live in poverty;
3) unemployment - at least 300 million unemployed workers in the Third World and according to ILO 36% of the labour force in less developed countries (LDC's) in underemployed, and half of the unemployed consist of educated youth;
4) inequitable income distribution, both between and within countries.

Any education strategy which attempts to combat poverty must simultaneously attack problems of:

a) lack of work;
b) nutrition/hygiene;
c) lack of community awareness;
d) traditional values which impede change.

A. Causes of the problem of educated unemployment

Education is not, in itself, responsible for the problem of unemployment among school leavers, and graduates; causes include labour market distortions such as over-valued exchange rates and distorted factor prices, particularly the large income differentials between the educated and less educated.

Political and social pressures have caused over-expansion of education, relative to job opportunities, and the undue emphasis on educational qualifications in job selection causes unrealistic aspirations, given that the number of new jobs in the modern sector is equal to only 20 to 30% of young people entering the labour force each year.

The problem of rural-urban migration is exacerbated by education, which helps to convert rural underemployment into urban open unemployment, as well as the general development strategy of LDC's, which favour the modern, urban sector.

B. Possible solutions

This section does not suggest what the right solutions are, but simply comments or asks questions about possible alternatives, i.e.:

a) do nothing in the hope it is a transitory problem;

b) impose quantitative controls on expansion of higher education;
c) increase "vocational" content of formal schooling;
d) cut the link between job recruitment and educational certification;
e) replace traditional examinations;
f) introduce genuine life-long education;
g) increase fees in higher education;
h) increase provision of out-of-school education.

All these "solutions" create difficulties; some seem to be unrealistic in LDC's (e.g. imposing rigid quantitative controls) others do not appear to have worked (e.g. increasing vocational component of formal schooling) but solutions have to be found. It is not a transitory problem, and attention must focus on "relatively quick and manageable reforms".

C. The role of international co-operation

Statistics on aid flow suggest that between 1969 and 1974 both UNDP/UNESCO and IBRD/IDA have been mainly supporting higher education, and bilateral aid has benefitted technical education, but recent trends point to increasing aid for non-formal education, and need for more:
a) small-scale experimental pilot projects;
b) local initiatives, endogenous development strategies;
c) technical co-operation among developing countries.

Future Research and Development Strategies

Development strategies are needed, which are based not on the concept of scarcity (of capital) but on abundance (of human beings). Future work must focus on search for:
a) unified, integrated approach to development;
b) endogenous development processes;
c) special attempts to aid the most underpriviledged groups in society.

The most urgent need is to provide operational content for these objectives, by translating them into concrete programmes and projects.

THE USE OF EDUCATIONAL QUALIFICATIONS IN LABOUR MARKETS

An Annotated Bibliography
Institute of Development Studies Library: Occasional Guides No. 11,
Brighton, The Institute of Development Studies, October 1977, 70 pp

Author: Angela Little, Institute of Development Studies at the University of Sussex, Brighton, England.

Content

This annotated bibliography contains details of 190 books or articles selected for their relevance to a research project carried out by the Institute of Development Studies (IDS) between 1974 and 1977 on "Employers' use of Educational Qualifications". The research, sponsored by the U.K. Ministry of Overseas Development was described in:

IDS Discussion Paper No. 70, April 1975, "Qualification and Selection in Educational Systems: A Programme of Research",

concentrated on Ghana, Mexico and Sri Lanka. The purpose of the bibliography is to "put this research in a wider perspective", and it includes both theoretical work and empirical studies for a wide range of countries.

The items are listed in alphabetical order, with a short description of each work, which states its purpose and its main conclusions. In addition, each item is coded, to show its relevance to the following subjects or themes:

a) general studies of relationships between education and employment, to labour market and economic development;
b) recruitment and selection policies of employers;
c) the escalation of qualifications used in selection procedures;
d) studies of job performance;
e) occupational expectations and aspirations of young people;
f) the processes of job placement and job seeking;
g) the use of testing (including intelligence, aptitude and personality testing) in occupational selection;
h) training alternatives to formal education;
i) bibliographic reviews of research or literature relevant to the basic themes of the research.

This coding system enables the reader to identify quickly all the items which are relevant to a particular topic. In addition, items are coded to indicate the country, or region, to which they refer.

Search Procedures

Most of the items in the bibliography are in the Library of the Institute of Development Studies. The bibliography emphasises that it "does not represent an exhaustive survey of all the research themes in all countries", although it does attempt to be comprehensive.

Assumptions

There are no explicit assumptions stated in the bibliography, but the basic assumptions of the IDS research on the use of educational qualifications in labour markets were:

1) that the use of formal educational qualifications to select people for modern sector employment makes education a major determinant of life chances;
2) that, as a result, the qualifying or grading function of schools tends to be exalted at the expense of the educational function (and more so in poor countries than in rich ones);
3) that attempts at educational reform which do not take into account linkages with the employment market are fruitless and/or trivial.

The research project, to which the preparation of this annoted bibliography contributed, is intended to test these hypotheses in specific countries, and also to examine alternative ways of selecting and training people for jobs, and alternative ways of organising schools, on the assumption that alternative mechanisms can be developed which will have less distorting effects on the distribution of income, the educational system or the modern sector of the economy.

Summary

The bibliography includes several different types of item, ranging from general theoretical works on the relations between education and employment, and some highly critical attacks on conventional economic or educational theories, attitudes or institutions, to the results of research projects examining the use of qualifications in selection of the determinants of job performance, and some purely descriptive studies of the attitudes and aspirations of school-leavers, or methods of recruitment and selection adopted by particular employers.

This section can do no more than pick out some of the most frequently recurring themes and some of the most important research conclusions.

Many of the items deal with the question of whether formal education contributes to economic growth, and the productivity of the labour force by creating and transmitting skills and knowledge, or by enabling employers' to identify applicants with particular abilities or attitudes which are necessary for successful job performance.

Formal education is positively correlated with earnings in most countries, but this may be because education increases the skills and knowledge of workers or because formal educational qualifications act as a "screening device" which enables employers to identify workers with high levels of motivation or other attributes. In some cases other forms of tests have been devised which accurately predict job performance, but in many cases their predictive power is weak.

Formal educational qualifications are more often used in the process of selecting workers for large firms than small firms. Other characteristics may be just as, or more, important to employers, notably work experience and on-the-job training.

Income is only of the characteristics which influence school leavers or graduates in their career choice; for example several surveys have shown that employment in the public sector may be preferred to employment in private firms, even if salaries are lower.

A policy of increasing the equality of access to education will not, by itself, have much impact on income distribution. The benefits of education are enjoyed mainly by children from higher social groups, and increasing educational enrolments generally benefit those with higher incomes. On the other hand, it is a mistake to apply general conclusions about the effect of education on income distribution in developed countries to developing countries, without taking into account different patterns of inequality.

The role of the educational system as the main provider of "certification" for employers has a more harmful effect in developing countries than in developed countries. Several writers believe that rather than acting as an agent of social modernization and development, educational systems respond to, and often re-inforce existing demands and pressures in society. This means that "restructuring the educational system alone, without more fundamental changes in the wider economic, social and political context has little chance of success in meeting genuine development needs".

A number of authors emphasise the need to co-ordinate educational reforms with other fundamental changes in society, for example, the structure of incentives and income differentials, but there is also agreement among several writers of the need to separate the education and selection functions of schools in developing countries.

LABOUR MARKET BACKWASH AND THE EDUCATIONAL PROCESS: AN ANNOTATED BIBLIOGRAPHY

Institute of Development Studies Library: Occasional Guides No. 12, Institute of Development Studies, Brighton, February 1978, 68 pp.

Author: Angela Little, Institute of Development Studies at the University of Sussex, Brighton, England.

Content

Like the previous item, this annotated bibliography was produced as part of a research programme of IDS, on "Qualification and Selection in Education Systems", but this relates to the second part of the programme, financed by the Swedish International Development Authority, which looked at the "backwash effects" of labour market practices on the educational process in a number of countries. The research concentrated upon Ghana, Malaysia, Mexico and China, and to a lesser extent Chile, India, Iran, Thailand, England, US, and Japan. The purpose of the bibliography is to put these studies into a wider context, both in terms of theories and of countries.

There are 275 items in this bibliography, although a number of them also appeared in Library Guide No. 11 (see previous section). The items are all coded to enable readers to identify those that are of particular relevance to the following research themes:

a) general studies of the relationship of school processes to national, community, and individual development, and to equality or inequality;
b) examinations and other forms of assessment;
c) bad teaching or learning patterns, e.g. learning dominated by external motivation, and teaching which stultifies natural curiosity or emphasises role learning without emphasising understanding, or problem solving;
d) factors which mitigate or exacerbate the backwash effects of labour market practices on the education system;
e) curriculum processes;
f) other factors which determine bad teaching or learning.

The bibliography covers both theoretical studies and empirical research. Each item is coded to show the country or region to which it refers, as well as its relevance to the basic themes of the research, and there is a short description of the work, and its main conclusions.

Assumptions

The coding system is based upon a number of assumptions which reflect the basic approach of the research on labour market backwash, to which this bibliography contributed. The first, and most fundamental assumption is that the use of examinations and educational qualifications as a means of selecting people for jobs, has a "distorting influence on the quality of education"; the research team believes that:

> "examinations and their selection functions are...a key to the linkage between the educational process and the modern sector labour market...and the abolition or radical restructuring of the examination system might free the education system from the constraints of the labour market".

The fact that the research assumes that the effect of examinations and selection procedures are frequently distorting, and undesirable, is reflected in the classification system, which makes a number of value judgements about "bad teaching and learning". Features such as emphasis on role learning, external motivation and competition are all defined as "bad" and so is "undue attention paid by the teacher to certain children at the expense of others".

The items included in the bibliography do not, of course, necessarily share these assumptions.

Search Procedures

Most of the items in the bibliography are in the Library of IDS.

Summary

Many examples of undesirable "backwash" effects of examinations and emphasis on qualifications in the labour market are given. The fact that "academic" education is still more highly regarded by students and their parents in many developing countries, despite frequent attempts to upgrade vocational education and particularly agricultural education in rural areas, reflects students' perceptions of job opportunities and relative salaries. These perceptions are one of the most powerful determinants of motivation in school, although pay alone has less effect on occupational choice than is sometimes supposed; security of employment may be more highly prized than high earnings.

The use of examinations as a selection device affects students'

motivation, curriculum planning, teaching methods, and contributes to high rates of wastage and repetition in many countries, but it is also emphasised that these problems have a long history. "Examinations...are but another name for death to originality" is a direct quotation from a nineteenth century British work on the theory and practice of teaching.

Many examples are given of attempts to reform examinations, and there are a number of proposals for reform, for example "the present explosion of knowledge makes memorisation more and more unprofitable... to find out how to use facts is much more important than remembering them and examinations should reflect this change in emphasis". However, attempts at educational reform can be thwarted by cultural values as well as economic pressures, and unless there are changes of attitudes on the part of the community at large, and particularly on the part of teachers, curriculum innovation by itself will have little impact on student attitudes or aspirations.

The effect of external rewards on motivation has been examined in a number of studies, but with conflicting results. Several authors have suggested that emphasis on external rewards undermines intrinsic motivation, while other studies reject this hypothesis. It is clear, however, that motivation is one of the most important determinants of pupils' success, and that more research needs to be done on different types of motivation.

EDUCATION AND WORK: AN EVALUATION AND INVENTORY OF CURRENT RESEARCH

International Institute for Educational Planning (IIEP) Working Paper, Mimeo, May 1978, 147 pp., includes two bibliographies (20 pages) and an annotated list of on-going research projects (55 pages).

Author: George Psacharopoulos, London School of Economics, Houghton Street, London, WC2A 2AE, England.

Content

The purpose of this paper is to review recent research on the relationship between education and work, in order to provide information and summarise the main conclusions for other researchers,and also to suggest the most fruitful areas and approaches for future work. The author tries to keep the "positive or objective" part of the work separate from the "normative and subjective" stage concerning future work.

The first section is methodological. It presents a brief set of definitions of "education" and "work" and formulates a set of inter-relationships between education and work, and this is followed by a summary of recent shifts in research emphasis. The second, and main section, is empirical, and summarises the main results of recent research in terms of fifteen (15) principal research results.

The final sections of the paper review on-going research in this area, and suggest an agenda for future research, which both identifies research topics which are likely to "fade away in years to come" and lists five types of research which are likely to be particularly useful.

There are two separate bibliographies; the first lists 75 books and articles which the author used when summarising the main trends and results of research. The second is a computer-generated bibliography by the Central Library and Documentation Branch of the ILO, on education and employment (since 1974) in developing and developed countries.

In addition, there is an annotated list of about 100 on-going research projects based on a questionnaire sent to nearly 1000 individual researchers and institutions around the world.

Method and Sources

The Director of the I.I.E.P. sent a circular letter to almost 1000 researchers or research organisations known to be conducting, or to have carried out, research in the field of education and work. The replies to this questionnaire were analysed, and the author also consulted officials at some key research centres, and other published material, notably (i) the Newsletters of the Programme in International Education Finance of the University of California, and (ii) ILO World Employment Programme: Research in Retrospect and Prospect, 1975 and Bibliographical Supplement and Country Index, 1976.

The review is also partly based on a paper presented at the European Seminar on Measuring the Economic and Social Effects of Educational Inequalities organised by the Swiss National Commission for UNESCO.

Assumptions

Education is defined to include not only formal schooling but on-the-job training, and "we do not associate education necessarily with skill learning so as to allow for possibilities of certification and screening that bear directly on the supply and demand of educated labour". Similarly, work is defined as:

> "a whole set of characteristics related to the employment conditions of the individuals such as labour force participation, job search, remuneration, work environment, occupational and income mobility and migration. The idea is to keep the definition as broad as possible in order to be able to accommodate analyses covering a range of disciplines, and not just economics".

Research Results

Before reviewing the major research results in this area in the last decade, the author identifies a number of shifts in emphasis that have recently occurred in the research on education and work, notably:

1) from a concentration on efficiency to a greater concern about income distribution, and equity;
2) from the question of the social profitability of investment in education to an examination of the determinants of private choice;
3) from the assumption that education transmits socially profitable skills to an examination of its role as a "screening device" enabling

employers to identify suitable workers;

4) from concentration on the supply of educated labour to a more comprehensive analysis of both demand and supply;

5) from concentration on formal schooling to an analysis of investments in all forms of learning, including on-the-job training;

6) from economics to wider inter-disciplinary studies, including sociology and politics.

These changes in research emphasis have been accompanied by changes in methodology, including greater use of multi-variate analysis, longitudinal data, more complex input-output models, and analysis of the determinants of demand, earnings differentials, etc.

The author then presents a summary of major research results which, it is emphasised, is a "personal assessment" of recent empirical work. The results which are discussed include the following:

1) The most profitable form of investment in education, from the social point of view is primary education;

2) Education is moreprofitable in less developed countries, and in all countries, the private returns are higher than the social returns.

3) Economic incentives are an important determinant of educational decisions, and education has a direct influence on productivity; it does not act simply as a screening device.

4) The length of unemployment of educated workers in LDC's is in inverse relation to their educational level.

5) Relative wage levels help to determine the brain drain, particularly from LDC's.

6) Education does help to equalise the distribution of income, over time, but the effects are small, and are only significant in the long term.

7) Earnings differentials are determined by workers' social background, as well as their education and work experience, but natural ability, as measured by IQ has little independent effect on earnings.

8) It is possible to produce the same level of output by using alternative combinations of inputs; in particular, it is possible to substitute one type of educated manpower for another, and therefore to achieve a target level it is not necessary to satisfy fixed "requirements" for particular categories of manpower.

9) This means that it is virtually impossible to predict the number of graduates required by the economy in the future.

10) Present patterns of financing and access to higher edudation mean that poor families subsidise the education of children from higher income families.

Discussion

The author discusses the research findings in terms of whether they:

a) break new ground, either theoretically or empirically;

b) provide new data or information about a country;

c) are useful for policy action.

He concludes that there has been no "sensational theoretical breakthrough" in the area of education and work since the "human capital revolution in economic thought" which emphasised that education is a form of capital investment. However, in recent years there has been great progress in empirical work, for example, the collection of micro-data on individual employers and workers, which permits more thorough analysis of job functions, and the contribution of education to productivity. Another example of progress is the addition of sociological and political analysis to what was previously a "monolithically economic" approach.

He then turns to the question of research priorities, and argues that countries should not try to duplicate research on areas that have been extensively studied - for example the returns to primary education - but should "devote their research effort to areas that are more specific to their particular circumstances".

Suggestions for Future Research

These particular areas are emphasised as being worthy of increased attention in the years to come:

1) Wider dissemination of the results of existing studies.

2) Analysis of the work conditions of recent graduates.

3) Analysis of the lower tail of the income (or occupational status) distribution.

In particular, five topics are singled out for future research:

1) Assessments of the private and social profitability by kind of field within a given level of education. This is information that is

specific to a particular country, whereas we already have estimates of the profitability of broad levels of education in many countries, and know, for example, that the social rate of return to primary education is invariably high in LDC's.

2) The financing of education and the question of how best to satisfy social demand for education within financial constraints.

3) Analysis of the institutional factors which determine low pay, compared with the role of personal characteristics in determining earnings, but with a concentration on low paid workers.

4) Increasing the flow of information about labour market conditions, as an aid to career counselling, job selection, etc.

5) Curriculum reform designed to produce quicker results, and greater flexibility on the part of educated manpower. "I believe it is high time that research activity concentrated on how to produce flexible men to fit an ever changing society."

In addition to these major research areas the author also recommends research on:

- The informal sector in LDC's
- Analysis of individual characteristics of employees as related to their job function
- Analysis of non-pecuniary benefits associated with given occupations
- Information and career counselling
- Farmers' education and its contribution to agricultural productivity
- Family background and access to education
- Education and youth unemployment
- Cost-benefit evaluation of vocational programmes
- Transition from education to working life
- Examinations and selection for entry to particular occupations.

EDUCATION, WORK AND EMPLOYMENT IN DEVELOPING COUNTRIES

A Synthesis of Recent Research

by Maureen Woodhall

Introduction

In the early 1960's education was all too often perceived as the answer to the planner's prayer. Education was proclaimed as the most profitable form of investment in human capital - more profitable, both for society and for individuals, than many forms of physical capital. Education contributed to economic growth, by improving the quality of the labour force, by giving qualified workers the skills and knowledge demanded by the modern sector of the economy, and therefore by making these workers more productive. At the same time, it brought indirect benefits, including better standards of health and child care, reduced fertility rates, greater social mobility between one generation and another, and a more equitable distribution of income. Therefore, policy-makers should expand education, particularly higher education, in order to satisfy future demand for educated manpower.

This period of euphoria was followed by a dramatic change in the early 1970's. The original hopes had not been fulfilled. The massive expansion of enrolments and educational expenditure that had occurred throughout the world, but particularly in developing countries, had not brought the promised benefits of faster economic growth. Instead, costs had risen, so that formal education absorbed an ever increasing share of national income and particularly government spending. But unemployment had also risen, and it was clear that the labour market just could not absorb the increasing numbers of school leavers and graduates seeking work. It was also clear that as countries became richer, the distribution of income usually became more rather than less, unequal, even if educational enrolments were also rising rapidly. In fact, education was not the main determinant of earnings; social class was more important, and luck played the most important part of all.

So the education system was suddenly regarded as an obstacle to progress, rather than the answer to the planners' dreams. It was an expensive luxury, absorbing an ever increasing share of economic resources, producing either a

conservative elite, committed to maintaining existing income inequalities, or unrealistic school leavers with aspirations that made them unfitted for actual job opportunities. The answer lay either in radical restructuring of the education system, for example by abolishing examinations, or even in "deschooling" society.

This represents an oversimplified view of the changes that took place in attitudes towards education and the contribution of educational planning to economic growth, but nevertheless it does give a flavour of some of the more extreme arguments that were put forward in the early 1960's and early 1970's, and shows why the literature on educational planning sometimes appears confused and contradictory.

Now a more balanced view of the economic role of education seems to prevail, both with respect to expectations of what education can achieve, and also the results of research into what have been the effects of educational expansion. This paper will try to draw together a number of strands from recent work on the relationship between education and employment, and will summarise some of the main issues that have dominated the literature in the last few years.

The relationship between education and worker productivity

In every country for which data exists, workers with more education earn more than illiterate workers, or those with less education. This relationship has been demonstrated for more than thirty countries, and cost-benefit calculations made of the profitability of different levels of education both for the economy as a whole. and for the private individual, or his family. (Psacharopoulos 1973). This type of analysis uses the extra earnings of the educated as a measure of the economic benefits of education.

This assumes that education makes an educated worker more productive, and that his higher earnings represent the reward for increased productivity. Of course, it is recognised that higher earnings reflect other factors, apart from educational qualifications,for example social background and natural ability, but there have been a number of attempts to examine the influence of these factors on earnings (nearly all in developed countries) which show that education is probably the most important single determinant of earnings, and accounts for well over half the extra earnings of educated workers (Psacharopoulos 1975).

However, it is still not clear exactly how education is instrumental in increasing workers' productivity. The simplest set of assumptions, which formed the basis for most of the earliest work on the returns to human capital, is that education and training provide workers with the knowledge and skills which are needed in a modern economy. These skills may be general skills, which make a worker more productive in many different jobs, or they may be specific to one particular type of employment or one employer (Becker 1964). Whether particular skills are general or specific will determine how the costs of training are shared between the government, employers and individual workers, and also whether the training is provided on the job or by means of formal education.

These assumptions have recently been challenged on a number of counts. First, it is questioned whether education does increase workers' productivity by giving them skills, or whether it simply acts as a "screening device" which enables employers to identify workers with a particular set of attitudes, motivation, or self-reliance - which are valued by employers, (Arrow 1973). There are conflicting views about whether education is used simply as a selection device which merely identifies abilities or attitudes, or whether it helps to create those attitudes which make a worker more valuable to an employer (Blaug 1973 and Psacharopoulos 1978).

There are also conflicting views about whether productivity is an attribute of workers or of jobs; if the latter is true, then education simply provides workers with a better chance in the "job competition" since highly educated workers are more likely to have access to jobs where productivity is higher due to investment in technically advanced machinery (Thurow 1974).

One way of examining the contribution of education to productivity is by comparing the physical output of workers with different levels of education, rather than by comparing their earnings. Studies of agricultural productivity, for example, have shown that the output of farmers is associated with their educational level, but not in all circumstances. Education appears to increase productivity in dynamic sectors or industries, but not in conditions which are technologically static (Leonor 1976). This has important implications:

> "Would more education (schooling) as a policy prescription to LDC's increase their productivity? Or, would more schooling for rural areas increase their productivity? The answers to these questions are YES, IF the complementary factors that make the conditions dynamic are also provided. In brief, the effectiveness of education in increasing production depends on what goes along with it. By itself, education is of little help." (Leonor 1976, p. 20.)

Despite all these controversies about the effect of education on productivity, there does seem to be agreement that the role of education is far more complicated than used to be assumed. It certainly provides workers with certain knowledge and skills, including literacy and numeracy, but many of the skills which are valuable to an employer in the modern sector, such as communication skills and the ability to understand complicated instructions, cannot be taught directly in schools. Nevertheless, these skills may be fostered indirectly by formal education, and at the same time, formal schooling may improve workers' ability to benefit from on-the-job training. There is evidence from several countries that, far from being alternatives, formal education and on-the-job training are complementary, in the sense that highly educated workers are more likely to receive on-the-job training than workers with lower levels of education.

Thus, as Blaug suggests:

> "Employers pay highly educated people more, even when their education has taught them no specific skill, because they are more achievement-motivated, are more self-reliant, act with greater initiative in problem-solving situations, adapt themselves more easily to changing circumstances, assume supervisory responsibilities more quickly, and benefit more from work experience and in-plant training. They not only pay them more when they hire them but they go on paying them more throughout their working life. In short, they expect them to be more productive than less educated people, and the expectation is borne out: the economic value of education thus resides principally in certain social and communication skills imparted to students and only secondarily in the formation of those "technically required productive skills" advocated by manpower forecasters. If, therefore, education contributes to economic growth it does so more by transforming the values and attitudes of students than by providing them with manual skills and cognitive knowledge; education is economically valuable not because of what students know but because of how they approach the problem of knowing." (Blaug 1973, p. 38.)

Training People for Particular Jobs

The conclusion that education affects workers' productivity through its influence on attitudes, just as much as through imparting knowledge and

skills, has important implications for the questions of how education can become more vocationally oriented. Many countries have attempted to introduce more vocational courses in secondary education, by developing technical and vocational schools or "streams", only to discover that schools which prepare pupils for "academic" courses, and thus qualify them for higher education, continue to have greater prestige, than vocational schools.

In fact, the idea that the expansion of vocational education in secondary schools could solve the problem of unemployment among school leavers, by changing their career aspirations, has been criticised by one writer as "the vocational school fallacy in development planning" (Foster 1966). He argues that, far from being unrealistic, school pupils' perceptions of actual job opportunities,and the relative salaries to be expected in different jobs, is often very accurate.

> "The operative fact is not that graduates will not accept certain types of employment, but rather that the schools (irrespective of what they teach) have been shrewdly used as the gateway into the 'emergent' sector of the economy. The school themselves can do little about this. So long as parents and students perceive the function of education in this manner, agricultural education and vocational instruction in the schools is not likely to have a determinative influence on the occupational aspirations and destinations of students. Aspirations are determined largely by the individuals' perception of opportunities, within the exchange sector of the economy, destinations by the actual structure of opportunities in that sector. The nature of educational instruction has little to do with the process." (Foster 1966, p. 151.)

Certainly many would argue with this point of view. However, attempts to vocationalise secondary education in several countries, (e.g. Latin America, see Schiefelbein 1976) have demonstrated that curriculum reform, by itself, can achieve little, and if university education continues to provide access to the most highly paid jobs, then vocational schools will continue to have lower prestige, than "general" or "academic" secondary schools.

Policies need to be developed which co-ordinate, rather than separate, general and vocational education, so that formal educational institutions provide a better preparation for actual job opportunities. In view of the uncertainties of technical change, and the impossibility of forecasting demand for specific occupation in the long term, schools should aim to

make pupils as flexible and adaptable as possible, rather than aiming to provide specific vocational skills.

However, much less is known about training for flexibility than about training for specific skills. Future research should examine the effectiveness of different kinds of curriculum, and different kinds of institutional arrangements, in promoting flexibility,mobility, and the ability to learn from work experience.

More research is also needed on the characteristics, or skills, required in different types of job. Detailed job analysis has been attempted in developed countries, (e.g. U.S.A. and the U.K.) but in few developing countries. But comparisons of worker characteristics in different occupations, or in different firms, have shown that there are very great differences in the education and training of people doing similar jobs in different countries (O.E.C.D. 1970) or in the same country, (e.g. in Indonesia, Hallak 1978).

Analysis of what workers actually do in different jobs, and what personal characteristics, or abilities and skills, are needed by workers in different occupations,is necessary if the education system is going to be changed, in order to provide better vocational preparation for actual job opportunities, and to reduce the mismatch that now exists between the type of training offered in the formal education system, and the qualities (including attitudes, as well as knowledge) valued in the labour market.

The Use of Education in Selection for Employment

The need for more information on the characteristics of jobs, is closely linked with another important question, i.e. the recruitment and promotion practices of employers. Various recent developments in labour market theories emphasise that employers fill certain job vacancies by recruitment in the external labour market, whereas other vacancies are filled through the internal labour market of the organisation itself; existing workers are selected for promotion, and given additional training. But the factors which determine the workings of internal and external labour markets are different (Doeringer and Piore 1971).

Segmented labour market theories go further, and argue that in any economy there are different groups, or classes, which face quite different labour market conditions, as a result of socio-political, rather than

economic, forces. It is an important feature of these theories that education plays an important part in selection procedures for the primary sectors of the labour market, but not for the secondary. In other words, workers with little formal schooling or training are trapped in the secondary sector, where they experience greater uncertainty, longer periods of unemployment, lower earnings and no job mobility.

Whether or not labour markets are segmented in this way is still a controversial question (Carnoy 1978 and Psacharopoulos 1978) but it is clear that methods of hiring and promoting workers differ considerably in different occupations, and that formal educational qualifications are more influential in the recruitment and selection policies of some employers than others; for example, large firms pay more attention to educational qualifications than small firms.

When educational qualifications are used extensively by employers in selecting and recruiting employees, this can have extremely distorting effects on both the demand for education, and the curriculum in schools. More and more students seek higher qualifications, simply in order to improve their relative chances of a better paid job. This tendency, called by various writers "credentialism" or "the diploma disease" (Dore 1976) leads, in their view, to a serious waste of resources, as more and more people seek to improve their chances in the "race" or "competition" for jobs, and meanwhile, employers constantly "upgrade" the educational requirements of jobs (Berg 1970).

There is evidence for several countries, e.g. U.S.A. (Berg 1970) and India (Blaug, Layard and Woodhall 1969) of upgrading or "educational inflation" but it has not been demonstrated how much of this is due to irrational selection policies of employers, how much to the use of education as a "screening device", and how much to the changing technological nature of jobs, over time. The most extreme version of the "screening device" hypothesis, namely that employers demand higher and higher educational qualifications, simply in order to maintain the power of education as a "filter" or "sieve", suggests that education serves no other purpose but that of identifying workers with superior natural ability. However, this is not supported by the fact that more highly educated workers continue to learn more than the less educated throughout their working life, even though evidence that is more direct than formal qualifications is available to employers when they promote older workers (Laynard and Psacharopoulos 1974).

A less extreme view, which seems to explain the observed behaviour of employers better, is that employers use educational qualifications when they select workers, partly as a method of identifying those with desired characteristics and attitudes (such as punctuality, perseverance, ability to work in a hierarchical situation) and partly because education develops those characteristics.

Alternative Methods of Selecting Workers for Employment

Probably the most significant argument againstthis extreme version of the "screening hypothesis" is that if the educational system served no other purpose beyond that of identifying abilities that are quite independent of education, then some institutions would develop that could provide cheap alternative selection mechanisms, such as aptitude tests,in both developed countries and LDC's. But no cheap but effective alternative to formal educational qualifications has been found, so far, in most countries (Little 1977). Nevertheless, many countries are seeking to weaken the link between formal educational qualifications and entry to particular jobs, and at the same time to reform examinations, so that they become more discriminating, and test understanding of concepts, rather than role-learning (Little 1978a).

Attitudes to Work and Career Aspirations

A common criticism of education in developing countries is that it creates unrealistic expectations among school leavers, so that they are unwilling to accept manual work, or work in rural areas, but instead migrate to towns, to seek clerical work, despite the mounting evidence that no jobs exist. Schools are criticised for creating these unrealistic aspirations, but one recent research study suggests that the educational ambitions of young people are not the cause of unrealistic career aspirations, but are the results of labour market conditions, particularly high rates of educated unemployment, and the extreme disparities of income between urban and rural workers, which are much greater in LDC's than in developed countries; for example, the ratio of rural to urban income is 1:1.3 in the U.K., 1:1.7 in Japan and 1:2.4 in the USA, but 1:4 in Iran and 1:10 in Chile.

> "What our data suggests is that students in LDC's expect to reach the highest levels of the education system regardless of their job expectations. In other words education appears to take an intrinsic value - to get as much of it as possible becomes an end in itself.

> Primary education is about getting into secondary, and secondary education is getting into tertiary. To reach tertiary education is to be a success even if one ends up in a low level job." (Little 1978 b).

This suggestion that the aspirations of students are not as unrealistic as is commonly supposed, has important implications. Clearly, educational and career expectations are closely linked, but the assumption is often made that it is educational ambitions that determine career choice, rather than vice versa. If it is true that educational aspirations are themselves determined by conditions in the labour market, including relative rates of unemployment, relative incomes and the well attested fact of "upgrading" of jobs, then students are behaving perfectly realistically and rationally in seeking higher and higher levels of education, even if their chances of actually achieving a high income job in the urban sector is low.

This means that the demand for education can best be influenced by policies designed to increase the costs of higher levels of education - for instance by raising fees - and at the same time changing relative salaries and employers' hiring practices, rather than policies designed to influence students attitudes directly through the education system.

This is one example of the growing conviction that educational reforms can only contribute to solving problems of unemployment and underemployment when they are carried out in conjunction with labour market policies (Blaug 1973, I.L.O. 1976).

Education and Income Distribution

The earliest work on the economic benefits of education was concerned primarily with the efficiency with which resources are allocated and used within the education system. It was argued that the objective of educational planning was to maximise the returns to education, by increasing investment in those levels of education offering the highest ratio of benefits to costs. In developing countries, this means primary education, since most rate of return studies have demonstrated that returns are much higher for primary education than for secondary or higher education, and in fact that the profitability of education declines with every successive level (Psacharopoulos 1978).

More recently, much more attention has been paid to questions of equity. In developed countries it has been argued that patterns of

subsidisation should be changed, in order to create a more equitable distribution of the benefits and the financial burdens of education, and it has also been argued that a redistribution of educational opportunities will help to equalise the distribution of income. This assumption has been strongly attacked (Jencks 1972) and remains a matter of fierce dispute. Nevertheless, despite uncertainties about the effects of education on income distribution, it is still true that questions about equity and income distribution are receiving far more attention in developed countries than a decade ago, and this preoccupation has been transferred to developing countries also.

Analysis of the patterns of subsidisation shows that existing methods of financing education are inequitable in developing countries, as well as in countries like the U.S.A. or U.K. (Psacharopoulos 1977). Because of the very high private rates of return to education, and the inequalities of access to higher education, the transfer of income from poor taxpayers to those who will become highly paid graduates in the future is even greater in developing countries than in more developed economies, which suggests that far more attention should be paid to the possibility of increasing fees and of introducing loan schemes for students, instead of scholarships. This could help to make the distribution of the costs of education more equitable, and bring the social and private rates of return to education into closer alignment.

Equally important, from the point of view of the equality of access to education, and the effects of this on the distribution of income, analysis of trends in income distribution in different countries suggest that in most countries, faster economic development leads to greater inequalities of income, until a country has achieved a high level of development; it is only after a peak has been achieved (corresponding to GDP per capita of US $200-500) that there will be a tendency towards greater income equality (Pankert 1973 and Mkandawire 1976).

This means that any development programme which aims to eradicate poverty must be crucially concerned with the question of income distribution. There is another reason why income distribution has come to play a central role in recent debates about development policies. It is widely believed that the equality or inequality of income distribution has an important influence on employment, particularly in developing countries. The argument is twofold. In the first place, the distribution of income between rich

and poor determines one volume of savings, which is a major determinant of the level of output and employment. But in addition to this effect, it is argued that the distribution between rich and poor determines not only the volume of consumption, but the pattern of consumption. The rich are more likely to purchase luxury goods, which have a high import content, and which are manufactured by capital-intensive production techniques. The poor, on the other hand, are more likely to buy domestically produced basic goods and services, which use labour intensive technology. Thus, any tendency towards increasing the equality of income distribution will lead, directly or indirectly,to an increase in employment.

This has been the foundation for a number of employment programmes, including several projects of the World Employment Programme of the I.L.O. particularly the employment missions to Colombia and the Philippines (I.L.O. 1976 and Mkandawire 1976).

However, the assumption that an increase in equality of income distribution will have this positive effect on employment remains largely untested and represents an article of faith, rather than an empirical fact.

Another article of faith that is widely believed is that expansion of education opportunities will result in greater equality of income distribution. Because education is a determinant of income, then it is argued that equalizing the distribution of education will necessarily lead to an equalization of incomes, at least in the long run. However, this has also been challenged, and it is now more generally accepted that education has a limited role in determining the distribution of income, so that any attempt to redistribute income between rich and poor must concentrate on income differentials, and particularly the institutional constraints which cause inequalities. For example, Carnoy has examined the impact of education on the distribution of income in Latin America, and he concludes that

> "equalizing the distribution of schooling does not necessarily lead to equalization of incomes - the relative wages and salaries received by those in the labour force with varying amounts of schooling can shift over time as the distribution of schooling changes so that more schooling at the bottom of the ladder can be worth relatively less. Thus, the intervention of the State in determining the wage structure is intimately related to the effect that increased schooling and a more equal distribution of schooling will have on income distribution." (Carnoy 1975, p.3)

The conclusion, therefore, of most of the recent work on the relationship between income distribution and employment, and also on the redistributing effects of education, have been that the relationship is more complicated than has been assumed, and also that the impact of education is more uncertain, and slower, than has been assumed. Thus, Mkandawire's conclusion, after reviewing all the research carried out under the World Employment Programme is that it

> "throws light on the complexity in the interrelation of the mechanisms determining employment and distribution and suggest that any strategy aiming at directly manipulating one of these with the hope that such measures will automatically bring about the desired changes in the other variables stand on extremely loose ground." (Mkandawire 1976, p. 22.)

Similarly, he argues that:

> "In the absence of radical restructuring of the economic growth process, it is not reasonable to believe that education can alter... income distribution in such a manner as to counter-weight the increased inequalities that most underdeveloped countries may be expected to experience before they reach the higher levels of income with which a more egalitarian structure of distribution is associated." (Mkandawire 1976.)

The message seems clear: education has an impact on income distribution since it determines access to highly paid jobs as well as the likelihood of unemployment, but the relationship is by no means automatic, and any strategy designed to redistribute income must include direct action on wage differentials and taxation, as well as the equalisation of educational opportunities.

Adult Education and Work

There has been a substantial expansion of adult participation in education in developing countries, alongside the rapid expansion of school enrolments. Adult education has taken two main forms. On the one hand there have been adult literacy programmes many of which have, in recent years, switched their emphasis from traditional mass literacy campaigns, with a multiplicity of social objectives, to the "selective intensive approach to functional literacy" adopted by UNESCO in 1963, which has much more explicit economic objectives, and is tied much more closely to employment possibilities. The aim of the functional literacy programmes is to provide both literacy and some kind of vocational instruction for young adults, between the ages of 15 and 29, and the projects have been located in areas expected to achieve rapid economic development. It

was hoped, therefore, that these new-style literacy campaigns would help to promote faster economic growth and increased employment opportunities. Unfortunately, evaluations of literacy programmes, for example in Iran and Tunisia, have shown them to be less effective than was hoped in fitting adults for productive employment. Blaug concludes that "the economic case (for adult literacy) looks rather thin either in terms of output or in terms of employment objectives". (Blaug 1973, p. 56.)

The other main type of adult education in developing countries has been accelerated training programmes for adults. These programmes have also expanded considerably, with the aim of reducing unemployment, but studies have shown that the geographical distribution of adult education is still very uneven, and that rural areas have benefitted much less than urban areas, particularly in Latin America (Schiefelbein 1976).

An evaluation of recurrent education programmes, carried out as part of the World Employment Programme of the I.L.O. (Stoikov 1975) concluded:

> "The question of whether recurrent education and training contribute to employment creation, or to the reduction of visible and disguised unemployment, is not easy to untangle and cannot be answered globally... Certain recurrent education programmes have a positive impact on certain employment problems..." (Stoikov 1975, p. 114.)

In particular, Stoikov mentions three types of recurrent education which can be particularly helpful in contributing to greater employment, or a redistribution of employment, in developing countries:-

1) industrial training programmes for adults in industries whose productive potential is hampered by specific skill shortages (for example, the Intensive Programme for the Preparation of Industrial Labour in Brazil);

2) the training of village-level workers and adult literacy campaigns in the rural sector, where these are accompanied by other investments in the infra-structure;

3) the postponement of higher education, for the majority of school leavers, so that when they come to enter university, after a period of work experience, they may receive greater benefits from higher education, as a result of improved motivation, and reduced uncertainty about aptitudes and career opportunities.

Such a scheme has been proposed in Sri Lanka as a result of the I.L.O. Employment Mission (I.L.O. 1971).

Finally, this assessment of the contribution of recurrent education programmes concludes on a cautious note:

> "Although recurrent education does promise certain concrete benefits, it is not going to solve all our problems, as suggested by some of its supporters." (Stoikov 1975, p. 115-8.)

The Growing Problem of Youth Unemployment

Various parts of this paper have been concerned with questions about the responsibility of the education system for the problems of open and disguised unemployment. For example, questions such as whether schools create, or at least "nurture and sustain" unrealistic career expectations, whether the fact that education is used by employers as a "screening device" in selecting recruits for jobs means that there is an inevitable tendency for employers to demand higher and higher qualifications, simply to preserve the function of education as a "filter" or "sieve", and whether it is possible to break the link between job recruitment and educational certification, for example as has been attempted in China. The discussion has taken for granted the seriousness of the problem. These concluding sections of the paper present a brief picture of the extent of the problem in developing countries, and a final summary of the range of solutions that have been proposed.

The extent of the problem can be demonstrated by many different sets of statistics. One striking set of figures is provided in a paper prepared for the I.L.O. on the "Basic Arithmetic of Youth Employment". The purpose of this paper is to show the combined effects of the population in developing countries, and the education explosion that has occurred in these countries in the last 20 years (Dore, Humphrey and West 1976).

The study consists of estimates of school output and modern sector job vacancies in 25 countries for 1973 and 1980. These show that:

> "in many developing countries the maximum number of new modern sector jobs which can be expected even at the most optimistic rates of growth would not provide for more than 20 to 30 per cent - sometimes no more than 15 per cent - of the number of young people coming on the job market in that year. Yet, as school enrolment rates grow (much faster than job opportunities) far more than 15 to 30 per cent of the age group gain the educational certificates which they see as entitling them to a modern sector job." (Dore et al. 1976, p.2.)

The calculations for Kenya, for example, based on fairly optimistic assumptions about the rate of economic growth, and the rate of increase of modern sector jobs suggests that by 1980, the number of young people entering the labour market will be 346,000, of whom 57 per cent will have completed primary and 21 per cent have completed secondary school. But the number of modern sector job vacancies will be only sufficient for 13 per cent of these young people, leaving 44 per cent of the age group who have completed primary school but will be unemployed; if we look at the number of non-manual jobs, compared with the numbers who have completed secondary school, then the calculations suggest that 15 per cent of the age group will have completed secondary school, but be unemployed.

As a result of such calculations the authors conclude:

> "The days when the central problem of educational planning was to produce enough "qualified manpower" for the modern sector... have gone for ever in most developing countries. School systems have acquired their own, barely controllable momentum of expansion. The gap between school outputs and modern sector job opportunities grows. Educational planning cannot any longer be a mere manipulation of numbers." (Dore et al.)

Steps Towards a Solution

The figures summarised in the previous section present a bleak picture. Attempts have been made to assess the responsibility of the education system for the problem, and the general conclusion of one I.L.O. study is fairly typical:

> "It is obvious that education is in no way responsible for the problem of over-all imbalance (i.e. between labour supply and demand) and changes in the educational system will not change the number of job opportunities.... However, education is definitely responsible for one of the problems of structural imbalance: that of matching employment opportunities and expectations." (Emmerij 1972.)

In other words, the basic conclusion of most of the recent studies of the links between education and employment is that education cannot, by itself, solve the problems of unemployment and underemployment of human resources, in developing countries. However, it can, if wrong decisions are made, make these problems worse, both by using scarce resources in an inefficient and inequitable way, thus preventing their use for other, more profitable purposes, and by creating, or at least maintaining, unrealistic attitudes towards work, and unrealistic expectations concerning job status or income.

The solutions that have been suggested vary enormously, and it would be quite impossible to summarise them all. The one common thread running through most of the suggestions is that attitudes of educational planners, politicians, and also teachers, will have to change radically, and drastically, if education systems and institutions are going to be successfully adapted to help solve the growing problem of unemployment. But at the same time, educational reforms are not enough; they must be accompanied by changes in labour market conventions, in traditional salary structures and income patterns, in recruitment and selection procedures, and maybe in the social and political framework, as well.

This final part of the paper will, therefore, simply summarise the basic elements to be included in a policy of educational and labour market reform, in order to reduce mis-match between education and work.

1. Quantitative controls of the education system, particularly the upper levels, in order to prevent over-investment in secondary and higher education, at the expense of primary and basic education.

2. Reforms of examination and selection procedures, in order to reduce the "qualifications spiral" which means that more and more people demand higher and higher levels of education simply in order to acquire a relative advantage in the competition for modern sector jobs, and in order to reduce the distorting effects of this pattern on attitudes towards learning and work.

3. Changes in financing mechanisms in order to shift some of the burden of the costs of education at secondary and higher levels from public to private sources, in order to reduce the <u>private</u> rate of return, which would reduce demand for education, and bring the social and private profitability of education closer together.

4. Changes in salary structures, in order to reduce the wide income disparities and the high private rates of return to upper levels of education, and to weaken the link between formal educational qualifications and earnings, where this is based on traditional hiring practices rather than productivity.

5. Increased flexibility of formal educational institutions, so that school and out-of-school education and training could be better

co-ordinated, and people could have a greater degree of choice concerning the timing and the combinations of formal and informal training and work experience.

6. Greater understanding of the influence of education on attitudes, so that qualities such as self-reliance, or creativity, which increase a worker's productivity can be fostered by the education system. Attempts to introduce curriculum reform in order to improve vocational preparation make education more relevant for rural areas, or for self-employment, all demand that we pay more attention to the effect of education on attitudes, rather than concentrating exclusively on skills and knowledge. Similarly, improvements in employers' recruitment policies often demand that more attention is paid to defining the attributes, competencies and attitudes that make a worker more productive in a specific job, and less attention given to defining job requirements purely in terms of formal educational qualifications.

There are many disagreements about the precise measures that would achieve these various objectives, and the precise balance between educational reforms, labour market reforms and more radical institutional changes that are needed. Nevertheless, there is very widespread agreement that it is a waste of time to look for one simple solution to the problems outlined in this paper, and also general agreement that the relationships between education, employment and productivity are far more complicated than has been assumed in the past either in manpower forecasts, or in cost-benefit analyses of education, or in some of the attempts at curriculum reform or other types of educational reform that have been advocated in the past.

Bibliographical Annex

Ahamad, B. and Blaug, H., eds. The Practice of Manpower Forecasting, Amsterdam, Elsevier, 1973.

Arrow, K. "Higher Education as a Filter", Journal of Public Economics, July, 1973.

Becker, G.S. Human Capital. New York, National Bureau of Economic Research, 2nd edition, 1975, 1st edition, 1964.

Berg, I. Education and Jobs: The Great Training Robbery. Penguin Education, 1970.

Blaug, M. Education and the Employment Problem in Developing Countries. Geneva, ILO, 1973.

Blaug, M., Laynard, P.R.G., and Woodhall, M. The Causes of Graduate Unemployment in India. London, Allen Lane/The Penguin Press, 1969.

Carnoy, M. Can Educational Policy Equalize Income Distribution in Latin America? WEP Research Working Paper WEP 2-18/WP6. Geneva, ILO, 1975. Mimeo.

Carnoy, M. Segmented Labor Markets: A Review of the Theoretical and Empirical Literature and its Implication for Educational Planning. Paris, I.I.E.P., 1978. Mimeo.

Coombs, P.H. and Ahmed, M. Attacking Rural Poverty: How Non-Formal Education Can Help. Johns Hopkins Press, 1974.

Doeringer, P. and Piore, M. Internal Labor Markets and Manpower Training. Lexington, Mass., Heath Lexington Books, 1971.

Dore, R. The Diploma Disease. London, Allen and Unwin, 1976.

Dore, R, Humphrey, J., and West, P. The Basic Arithmetic of Youth Employment: Estimates of school outputs and modern sector vacancies for twenty-five countries, 1973 and 1980. WEP Research Working Paper, WEP 2-18 / WP 9. Geneva, ILO. Mimeo.

Emmerij, L. "Education and Employment: Some Preliminary Findings and Thoughts", International Labor Review, Vol. 107, No. 1, 1973.

Foster, P. "The Vocational School Fallacy in Development Planning", in Anderson, C.A., and Bowman, M.J., eds. Education and Economic Development. Aldine Publishing Co., 1966. pp. 142-166.

Hallak, J. Education and Work in Indonesia. Paris, I.I.E.P., 1978

ILO. Matching Employment Opportunities and Expectations: A Programme of Action for Ceylon. Geneva, 1971.

ILO. Employment and Growth and Basic Needs: A One World Problem. Geneva, 1976.

Jencks, C. Inequality. Basic Books, 1972.

Jolly, R., De Kadt, E., Singer, H., and Wilson, F., eds. Third World Employment: Problems and Strategy. Harmondsworth, UK, Penguin Education, 1973.

Layard, P.R.G., and Psacharopoulos, G. "The Screeening Hypothesis and the Returns to Education", Journal of Political Economy, September/ October, 1974.

Leonor, M.D., Jr. Education and Productivity: Some Evidence and Implications. WEP Research Working Papers, WEP 2-18 / WP 8, Geneva, ILO. Mimeo.

Little, A. The Use of Educational Qualifications in Labour Markets -- An Annotated Bibliography. Institute of Development Studies Library, Occasional Guides No. 11. Brighton, Sussex, 1977.

Little, A. Labour Market Backwash and the Educational Process -- An Annotated Bibliography. Institute of Development Studies Library, Occasional Guides No. 12. Brighton, Sussex, 1978.

Little, A., The Occupational and Educational Expectations of Students in Developed and Developing Countries. Institute of Development Studies Research Reports. Brighton, Sussex,1978.

Mkandawire, P. Th. WEP Research: A Critical Review. Swedish Agency for Research Co-operation with Developing Countries, SAREC Report No. R:1, 1976.

O.E.C.D. Occupational and Educational Structures of the Labour Force and Levels of Economic Development: Possibilities and Limitations of an International Comparison Approach. Paris, 1970.

Paukers, F. "Income Distribution at Different Levels of Development: A Survey of Evidence", International Labor Review, Vol. 108, No. 2-3, August/September, 1973.

Psacharopoulos, G. Returns to Education: An International Comparison. Amsterdam, Elsevier, 1973.

Psacharopoulos, G. Earnings and Education in O.E.C.D. Countries. Paris, O.E.C.D., 1975.

Psacharopoulos, G. "The Perverse Effects of Public Subsidisation of Education", Comparative Education Review, February 1977.

Psacharopoulos, G. Education and Work: An Evaluation and Inventory of Current Research. Paris, I.I.E.P., 1978. Mimeo.

Schiefelbein, E. Education and Employment in Latin America. Santiago, ILO/PREALC, 1976.

Simmons, J. The Education Dilemma: Policy Issues for Developing Countries in the 1980's. London, Pergamon Press, 1979.

Simmons, J. Towards an Evaluation of Literacy and Adult Education in a Developing Country. Cambridge, Mass., Harvard Graduate School of Education, 1972.

Stoikov, V. The Economics of Recurrent Education and Training. Geneva, ILO, 1975.

Thurow, L.C. "Education and Economic Equality", The Public Interest, Summer, 1972.